

What is claimed is:

1. A liquid crystal display device comprising a first transparent substrate and a second transparent substrate arranged to confront each other, and a liquid crystal component layer sealed between said first
5 transparent substrate and said second transparent substrate; wherein,

said first transparent substrate is provided with a transparent insulating substrate, pixel electrodes and common electrodes substantially parallel
10 and alternately arranged on said transparent insulating substrate, a plurality of pixels arranged in matrix form, scan lines and switching elements that individually control electric fields applied to pixel electrodes of said pixels, signal lines connected to
15 said switching elements; common lines that supply a prescribed electric potential to common electrodes of said pixels, and a first alignment layer formed on the highest layer; and

sub
Q,

said second transparent substrate is provided
20 with at least a second alignment layer on the highest layer and

specific alignment processing is carried out such that alignment of said first alignment layer and said second alignment layer differs at regions of said
25 signal lines and their vicinities that is referred to

5 said signal line regions of said first alignment layer and said second alignment layer is a vertical alignment.

5. A liquid crystal display device according to claim 1 wherein an alignment process is carried out such that the alignment of said pixel aperture region of said first alignment layer and said second alignment layer has an inclination of any angle θ that is neither orthogonal nor parallel to the longitudinal direction of said pixel electrode.

6. A liquid crystal display device according to claim 2 wherein an alignment process is carried out such that the alignment of said pixel aperture regions of said first alignment layer and said second alignment layer has an inclination of any angle θ that is neither orthogonal nor parallel to the longitudinal direction of said pixel electrodes.

7. A liquid crystal display device according to claim 3 wherein an alignment process is carried out such that the alignment of said pixel aperture regions of said first alignment layer and said second alignment layer has an inclination of any angle θ that is neither orthogonal nor parallel to the longitudinal direction of

said pixel electrodes.

8. A liquid crystal display device according to claim 4 wherein an alignment process is carried out such that the alignment of said pixel aperture regions of said first alignment layer and said second alignment
5 layer has an inclination of any angle θ that is neither orthogonal nor parallel to the longitudinal direction of said pixel electrodes.

9. A liquid crystal display device according to claim 2 wherein said first alignment layer and said second alignment layer are alignment layers that can be aligned by light, and are processed by polarized light
such that each of said signal line regions and said pixel aperture regions of these alignment layers
undergoes a stipulated alignment process.

10. A liquid crystal display device according to claim 3 wherein said first alignment layer and said second alignment layer are alignment layers that can be aligned by light, and are processed by polarized light
5 such that each of said signal line regions and said pixel aperture regions of these alignment layers undergoes a stipulated alignment process.

11. A liquid crystal display device according to claim 4 wherein said first alignment layer and said second alignment layer are alignment layers that can be aligned by light, and are processed by polarized light
5 such that each of said signal line regions and said pixel aperture regions of these alignment layers undergoes a stipulated alignment process.

12. A liquid crystal display device according to claim 2 wherein the alignment process of regions other than said signal line regions and said pixel aperture regions of said first alignment layer and said second alignment layer is the same alignment process as either the alignment process of said signal line regions or the alignment process of said pixel aperture regions.

13. A liquid crystal display device according to claim 3 wherein the alignment process of regions other than said signal line regions and said pixel aperture regions of said first alignment layer and said second
5 alignment layer is the same alignment process as either the alignment process of said signal line regions or the alignment process of said pixel aperture regions.

14. A liquid crystal display device according to claim 4 wherein the alignment process of regions other

than said signal line regions and said pixel aperture regions of said first alignment layer and said second alignment layer is the same alignment process as either the alignment process of said signal line regions or the alignment process of said pixel aperture regions.

15. A liquid crystal display device according to claim 5 wherein the alignment process of regions other than said signal line regions and said pixel aperture regions of said first alignment layer and said second alignment layer is the same alignment process as either the alignment process of said signal line regions or the alignment process of said pixel aperture regions.

16. A liquid crystal display device according to claim 2 wherein said pixel electrodes and said signal lines both extend over said common electrodes with an insulating film, are parallel to said common electrodes, and are separated from each other.

17. A liquid crystal display device according to claim 3 wherein said pixel electrodes and said signal lines both extend over said common electrodes with an insulating film, are parallel to said common electrodes, and are separated from each other.

18. A liquid crystal display device according to claim 4 wherein said pixel electrodes and said signal lines both extend over said common electrodes with an insulating film, are parallel to said common electrodes, and are separated from each other.

19. A liquid crystal display device according to claim 5 wherein said pixel electrodes and said signal lines both extend over said common electrodes with an insulating film, are parallel to said common electrodes, and are separated from each other.

20. A liquid crystal display device according to claim 2 wherein said common electrodes and said pixel electrodes extend parallel to each other and separated from each other; and said signal lines extend parallel to said common electrodes and over said common electrodes and said pixel electrodes with an insulating film.

21. A liquid crystal display device according to claim 3 wherein said common electrodes and said pixel electrodes extend parallel to each other and separated from each other; and said signal lines extend parallel to said common electrodes and over said common electrodes and said pixel electrodes with an insulating

film.

22. A liquid crystal display device according to claim 4 wherein said common electrodes and said pixel electrodes extend parallel to each other and separated from each other; and said signal lines extend parallel
5 to said common electrodes and over said common electrodes and said pixel electrodes with an insulating film.

23. A liquid crystal display device according to claim 5 wherein said common electrodes and said pixel electrodes extend parallel to each other and separated from each other; and said signal lines extend parallel
5 to said common electrodes and over said common electrodes and said pixel electrodes with an insulating film.

24. A liquid crystal display device comprising a first transparent substrate and a second transparent substrate arranged to confront each other, and a liquid crystal component layer sealed between said first
5 transparent substrate and said second transparent substrate; wherein,

said first transparent substrate is provided with a transparent insulating substrate, pixel

B2
Cont'd

electrodes and common electrodes substantially parallel
10 and alternately arranged on said transparent insulating
substrate, a plurality of pixels arranged in matrix
form, scan lines and switching elements that
individually control electric fields applied to pixel
electrodes of said pixels, signal lines connected to
15 said switching elements, common lines that supply a
prescribed electric potential to common electrodes of
said pixels and a first alignment layer formed on the
highest layer; and

said second transparent substrate is provided
20 with at least a second alignment layer on the highest
layer, and a light-shielding layer having aperture
regions of said pixels below said alignment layer,

said liquid crystal component has a positive
dielectric constant anisotropy,
25 said first alignment layer and said second
alignment layer undergo an alignment process so as to
have an inclination of any angle θ which is neither
parallel nor orthogonal to the longitudinal direction of
said pixel electrode,

30 said light-shielding layer is formed from a
conductor and

voltage is applied to said light-shielding
layer such that the director of liquid crystal molecules
within said liquid crystal component layer in regions of

B2
End

35 said signal lines and their vicinities is aligned substantially perpendicular to said first transparent substrate.

25. A liquid crystal display device according to claim 24 wherein voltage impressed to said light-shielding layer is either a direct-current voltage of a potential within a range of 10-20 V higher, or within a
5 range of 10-20 V lower, than the average value of the potential of said signal lines, or an alternating voltage of a long period.

26. A liquid crystal display device according to claim 24 wherein said pixel electrodes and said signal lines extend over said common electrodes with an insulating layer, are parallel to said common electrodes, and separated from each other.

27. A liquid crystal display device according to claim 24 wherein said common electrodes and said pixel electrodes extend parallel and separated from each other, and said signal lines extend parallel to said
5 common electrodes over said common electrodes and said pixel electrodes with an interposed insulating layer.